

using the arithmetic average of the emission rates for the reporting year immediately preceding the period of missing data and the months immediately following the period of missing data. Alternatively, you may estimate missing information using records from the heat transfer fluid supplier. You must document the method used and values used for all missing data values.

§ 98.96 Data reporting requirements.

In addition to the information required by § 98.3(c), you must include in each annual report the following information for each electronics manufacturing facility:

(a) Annual manufacturing capacity of your facility as determined in Equation I-5 of this subpart.

(b) For facilities that manufacture semiconductors, the diameter of wafers manufactured at your facility (mm).

(c) Annual emissions of:

(1) Each fluorinated GHG emitted from each process type for which your facility is required to calculate emissions as calculated in Equations I-6 and I-7 of this subpart.

(2) Each fluorinated GHG emitted from each individual recipe (including those in a set of similar recipes), or process sub-type as calculated in Equations I-8 and I-9 of this subpart, as applicable.

(3) N₂O emitted from each chemical vapor deposition process and from other N₂O-using manufacturing processes as calculated in Equation I-10 of this subpart.

(4) Each heat transfer fluid emitted as calculated in Equation I-16 of this subpart.

(d) The method of emissions calculation used in § 98.93.

(e) Annual production in terms of substrate surface area (e.g., silicon, PV-cell, glass).

(f) When you use factors for fluorinated GHG process utilization and by-product formation rates other than the defaults provided in Tables I-3, I-4, I-5, I-6, and I-7 to this subpart and/or N₂O utilization factors other than the defaults provided in Table I-8 to this subpart, you must report the following, as applicable:

(1) The recipe-specific utilization and by-product formation rates for each in-

dividual recipe (or set of similar recipes) and/or facility-specific N₂O utilization factors.

(2) For recipe-specific utilization and by-product formation rates, the film or substrate that was etched/cleaned and the feature type that was etched, as applicable.

(3) Certification that the recipes included in a set of similar recipes are similar, as defined in § 98.98.

(4) Certification that the measurements for all reported recipe-specific utilization and by-product formation rates and/or facility-specific N₂O utilization factors were made using the International SEMATECH #06124825A-ENG (incorporated by reference, see § 98.7), or the International SEMATECH #01104197A-XFR (incorporated by reference, see § 98.7) if measurements were made prior to January 1, 2007.

(5) Source of the recipe-specific utilization and by-product formation rates and/or facility-specific-N₂O utilization factors.

(6) Certification that the conditions under which the measurements were made for facility-specific N₂O utilization factors are representative of your facility's N₂O emitting production processes.

(g) Annual gas consumption for each fluorinated GHG and N₂O as calculated in Equation I-11 of this subpart, including where your facility used less than 50 kg of a particular fluorinated GHG or N₂O during the reporting year. For all fluorinated GHGs and N₂O used at your facility for which you have not calculated emissions using Equations I-6, I-7, I-8, I-9, and I-10 of this subpart, the chemical name of the GHG used, the annual consumption of the gas, and a brief description of its use.

(h) All inputs used to calculate gas consumption in Equation I-11 of this subpart, for each fluorinated GHG and N₂O used.

(i) Disbursements for each fluorinated GHG and N₂O during the reporting year, as calculated using Equation I-12 of this subpart.

(j) All inputs used to calculate disbursements for each fluorinated GHG and N₂O used in Equation I-12 of this subpart, including all facility-wide gas-specific heel factors used for each

fluorinated GHG and N₂O. If your facility used less than 50 kg of a particular fluorinated GHG during the reporting year, facility-wide gas-specific heel factors do not need to be reported for those gases.

(k) Annual amount of each fluorinated GHG consumed for each recipe, process sub-type, or process type, as appropriate, and the annual amount of N₂O consumed for each chemical vapor deposition and other electronics manufacturing production processes, as calculated using Equation I-13 of this subpart.

(l) All apportioning factors used to apportion fluorinated GHG and N₂O consumption.

(m) For the facility-specific apportioning model used to apportion fluorinated GHG and N₂O consumption under § 98.94(c), the following information to determine it is verified in accordance with procedures in § 98.94(c)(1) and (2):

(i) Identification of the quantifiable metric used in your facility-specific engineering model to apportion gas consumption.

(ii) The start and end dates selected under § 98.94(c)(2)(i).

(iii) Certification that the gases you selected under § 98.94(c)(2)(ii) correspond to the largest quantities consumed on a mass basis, at your facility in the reporting year for the plasma etching process type and the chamber cleaning process type.

(iv) The result of the calculation comparing the actual and modeled gas consumption under § 98.94(c)(2)(iii).

(n) Fraction of each fluorinated GHG or N₂O fed into a recipe, process sub-type, or process type that is fed into tools connected to abatement systems.

(o) Fraction of each fluorinated GHG or N₂O destroyed or removed in abatement systems connected to process tools where recipe, process sub-type, or process type *j* is used, as well as all inputs and calculations used to determine the inputs for Equation I-14 of this subpart.

(p) Inventory and description of all abatement systems through which fluorinated GHGs or N₂O flow at your facility, including the number of devices of each manufacturer, model numbers, manufacturer claimed

fluorinated GHG and N₂O destruction or removal efficiencies, if any, and records of destruction or removal efficiency measurements over their in-use lives. The inventory of abatement systems must describe the tools with model numbers and the recipe(s), process sub-type, or process type for which these systems treat exhaust.

(q) For each abatement system through which fluorinated GHGs or N₂O flow at your facility, for which you are reporting controlled emissions, the following:

(1) Certification that each abatement system has been installed, maintained, and operated in accordance with manufacturers' specifications.

(2) All inputs and results of calculations made accounting for the uptime of abatement systems used during the reporting year, in accordance with Equations I-14 and I-15 of this subpart.

(3) The default destruction or removal efficiency value or properly measured destruction or removal efficiencies for each abatement system used in the reporting year.

(4) Where the default destruction or removal efficiency value is used to report controlled emissions, certification that the abatement systems for which emissions are being reported were specifically designed for fluorinated GHG and N₂O abatement. You must support this certification by providing abatement system supplier documentation stating that the system was designed for fluorinated GHG and N₂O abatement.

(5) Where properly measured destruction or removal efficiencies or class averages of destruction or removal efficiencies are used, the following must also be reported:

(i) A description of the class, including the abatement system manufacturer and model number and the fluorinated GHG(s) and N₂O in the effluent stream.

(ii) The total number of systems in that class for the reporting year.

(iii) The total number of systems for which destruction or removal efficiency was properly measured in that class for the reporting year.

(iv) A description of the calculation used to determine the class average, including all inputs to the calculation.

(v) A description of the method used for randomly selecting class members for testing.

(r) For heat transfer fluid emissions, inputs to the heat transfer fluid mass balance equation, Equation I-16 of this subpart, for each fluorinated GHG used.

(s) Where missing data procedures were used to estimate inputs into the heat transfer fluid mass balance equation under § 98.95(b), the number of times missing data procedures were followed in the reporting year, the method used to estimate the missing data, and the estimates of those data.

(t) A brief description of each “best available monitoring method” used according to § 98.94(a), the parameter measured or estimated using the method, and the time period during which the “best available monitoring method” was used.

§ 98.97 Records that must be retained.

In addition to the information required by § 98.3(g), you must retain the following records:

(a) All data used and copies of calculations made as part of estimating gas consumption and emissions, including all spreadsheets.

(b) Documentation for the values used for fluorinated GHG and N₂O utilization and by-product formation rates. If you use facility-specific and recipe-specific utilization and by-product formation rates, the following records must also be retained, as applicable:

(1) Complete documentation and final report for measurements for recipe-specific utilization and by-product formation rates demonstrating that the values were measured using International SEMATECH #06124825A-ENG (incorporated by reference, see § 98.7) or, if the measurements were made prior to January 1, 2007, International SEMATECH #01104197A-XFR (incorporated by reference, see § 98.7).

(2) Documentation that recipe-specific utilization and by-product formation rates developed for your facility are measured for recipes that are similar to those used at your facility, as defined in § 98.98. The documentation must include, at a minimum, recorded to the appropriate number of significant figures, reactor pressure, flow

rates, chemical composition, applied RF power, direct current (DC) bias, temperature, flow stabilization time, and duration.

(3) Documentation that your facility's N₂O measurements are representative of the N₂O emitting processes at your facility.

(4) The date and results of the initial and any subsequent tests to determine utilization and by-product formation rates.

(c) Documentation for the facility-specific engineering model used to apportion fluorinated GHG and N₂O consumption. This documentation must be part of your site GHG Monitoring Plan as required under § 98.3(g)(5). At a minimum, you must retain the following:

(1) A clear, detailed description of the facility-specific model, including how it was developed; the quantifiable metric used in the model; all sources of information, equations, and formulas, each with clear definitions of terms and variables; and a clear record of any changes made to the model while it was used to apportion fluorinated GHG and N₂O consumption across individual recipes (including those in a set of similar recipes), process sub-types, and/or process types.

(2) Sample calculations used for developing a recipe-specific, process sub-type-specific, or process type-specific gas apportioning factors (f_{ij}) for the two fluorinated GHGs used at your facility in the largest quantities, on a mass basis, during the reporting year.

(d) For each abatement system through which fluorinated GHGs or N₂O flow at your facility, for which you are reporting controlled emissions, the following:

(1) Documentation to certify the abatement system is installed, maintained, and operated in accordance with manufacturers' specifications.

(2) Abatement system calibration and maintenance records.

(3) Where the default destruction or removal efficiency value is used, documentation from the abatement system supplier describing the equipment's designed purpose and emission control capabilities for fluorinated GHG and N₂O.